

## Notes 3117 - Parabola Basics

Parabola - shape of the graph of a quadratic function ( $x^2$ )



Standard Form

$$y = ax^2 + bx + c$$

Vertex Form

$$y = a(x - h)^2 + k$$

"a" - controls the direction of opening/concavity

+a ↗  
concave up

-a ↘  
concave down

(h, k) is the vertex

Note: The h-value is always the opposite of what you see in the equation

Ex:  $y = 2(x + 1)^2 - 5$

Concave up, vertex (-1, -5)

Ex:  $y = -\frac{1}{2}(x - 6)^2 + 1$

↓  
concave down, vertex (6, 1)